

What is claimed is:

1. An air driven hydraulic pump comprising
two opposed pneumatic cylinders;
two pneumatic pistons slideable in the opposed pneumatic cylinders,
respectively, each pneumatic piston including an outward face and an attachment face;
5 a shaft assembly extending between the two opposed pneumatic pistons and
coupled with the attachment face of each piston;
a valve assembly in selective fluid communication with both the attachment face
and the outward face of each pneumatic piston in the opposed pneumatic cylinders and
in communication with a source of pressurized air, the valve assembly being
10 constructed and arranged to direct air pressure to the attachment face of one of the two
pneumatic pistons and the outward face of the other of the two pneumatic pistons at the
same time and alternately to the outward face of the one of the two pneumatic pistons
and the attachment face of the other of the two pneumatic pistons at the same time;
hydraulic cylinders extending from the opposed cylinders, respectively;
15 hydraulic plungers slideable in the hydraulic cylinders, respectively, the hydraulic
plungers being fixed to the two pneumatic pistons, respectively.
2. The pump of claim 1, the valve assembly alternately directing air pressure
responsive to the location of the two pneumatic pistons and shaft assembly.
3. The pump of claim 1 further comprising
a center section assembly between the two opposed pneumatic cylinders at the
inner ends thereof, the valve assembly being attached to the center section assembly;

two cylinder heads closing outer ends of the two opposed pneumatic cylinders,
5 respectively, the hydraulic cylinders being in the two cylinder heads.

4. The pump of claim 3, the two opposed pneumatic cylinders being integral with the two cylinder heads, respectively, each pneumatic cylinder being fastened to the center section.

5. The pump of claim 3 further comprising passages between the center section and the pneumatic cylinders, respectively, the passages being in fluid communication with the outward faces of the pneumatic pistons, respectively.

6. An air driven hydraulic pump comprising two opposed pneumatic cylinders; two pneumatic pistons slideable in the opposed pneumatic cylinders, respectively, each pneumatic piston including an outward face and an attachment face;
5 a shaft assembly extending between the two opposed pneumatic pistons and coupled with the attachment face of each pneumatic piston; a valve assembly in selective fluid communication with both the attachment face and the outward face of each pneumatic piston in the opposed pneumatic cylinders and in communication with a source of pressurized air, the valve assembly being
10 constructed and arranged to direct air pressure to the attachment face of one of the two pneumatic pistons and the outward face of the other of the two pneumatic pistons at the same time and alternately to the outward face of the one of the two pneumatic pistons and the attachment face of the other of the two pneumatic pistons at the same time;

hydraulic cylinders extending from the opposed pneumatic cylinders,
15 respectively;

hydraulic plungers slideable in the hydraulic cylinders, respectively, the hydraulic
plungers being fixed to the two pneumatic pistons, respectively;

a center section assembly between the two opposed pneumatic cylinders at the
inner ends thereof, the valve assembly being attached to the center section assembly;

20 two cylinder heads closing outer ends of the two opposed pneumatic cylinders,
respectively, the hydraulic cylinders being in the two cylinder heads, the two opposed
pneumatic cylinders being integral with the two cylinder heads, respectively, each
pneumatic cylinder being fastened to the center section;

passages between the center section and the pneumatic cylinders, respectively,
25 the passages being in fluid communication with the outward faces of the pneumatic
pistons, respectively.

7. The pump of claim 6, the valve assembly alternately directing air pressure
responsive to the location of the two pneumatic pistons and shaft assembly.